

Yulun Wu

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Education and Training

- 2025.04- **Postdoctoral Researcher**
University of Toronto, Toronto, ON, Canada
Project: *Tracing air parcel trajectories for validating remotely sensed aerosol products*
- 2020.01-2025.01 **PhD in Geography** (Fast-tracked from MSc Geography in September 2021)
University of Ottawa, Ottawa, ON, Canada
Thesis: *Adjacency effect in nearshore aquatic remote sensing: modelling, correction, and application* [\[link\]](#)
Supervisor: Dr. Anders Jensen Knudby
- 2014.09-2019.12 **Honours BSc in Environmental Science (Co-op)**
University of Ottawa, Ottawa, ON, Canada
Honours Thesis: *The spatial distribution of arsenic and other trace metal contaminants and their acute toxicity to Daphnia pulex in lakes near the Giant Mine in Yellowknife, Canada*
Supervisor: Dr. Jules M. Blais

Research Interests

Coastal remote sensing; atmospheric correction; ocean optics; aerosols; planetary science; radiative transfer; geospatial analysis

Professional Experience

- 2024-2025 Remote Sensing and Field Technician (through the Mitacs Accelerate program), WSP Canada Inc., Montreal
- 2021-2025 Lab Coordinator, Shallow Water Earth Observation Lab, University of Ottawa
- 2022-2023 Assistant Ecologist, Office of the Chief Ecosystem Scientist, Parks Canada
- 2022 Remote Sensing Technician, Liquid Geomatics, Ottawa
- 2021 Field Technician, Fluvial Systems Research Inc., Vancouver
- 2020-2024 Remote Sensing Researcher, Agriculture and Agri-Food Canada, Ottawa
- 2020-2022 Research Assistant, Network on Coastal, Oceans and Lake Optics Remote Sensing (NetCOLOR)
- 2018-2020 Spatial Analyst (Co-op), Ottawa Neighbourhood Study, University of Ottawa
- 2018 Assistant Librarian (Co-op), Ottawa Hospital Research Institute, Ottawa

2017 Research Assistant (Co-op), Macroecology Lab, Department of Biology,
University of Ottawa

Teaching Experience

- Winter 2025 **Course Instructor**
GEG3105 *Earth Observation*
University of Ottawa
- 2023-2024 **Guest Lecturer**
GEG4104 *Methodological and Theoretical Approaches in Geography and Environmental Studies* and GEG3105 *Earth Observation*
University of Ottawa
- 2021-2023 **Teaching Assistant**
MAT1371 *Descriptive Statistics*, GEG3305 *Geographies of Globalization*,
GEG4702 *Le développement des villes*, ENV1101 *Global Environmental Challenges*, GEG3114 *Biogeography*, and BIO2129 *Ecology* (in chronological order)
University of Ottawa

Publications

Peer reviewed

- Richardson, G., Knudby, A., **Wu, Y.**, & Ansari, M. (2025). A case study comparing approaches to mask satellite-derived bathymetry. *Discover Geoscience*, 3(1), 103.
<https://doi.org/10.1007/s44288-025-00219-1>
- Wu, Y.**, Knudby, A., Pahlevan, N., Lapen, D., & Zeng, C. (2024). Sensor-generic adjacency-effect correction for remote sensing of coastal and inland waters. *Remote Sensing of Environment*, 315, 114433. <https://doi.org/10.1016/j.rse.2024.114433>
- Richardson, G., Foreman, N., Knudby, A., **Wu, Y.**, & Lin, Y. (2024). Global deep learning model for delineation of optically shallow and optically deep water in Sentinel-2 imagery. *Remote Sensing of Environment*, 311, 114302. <https://doi.org/10.1016/j.rse.2024.114302>
- Richardson, G., Foreman, N., **Wu, Y.**, & Knudby, A. (2024). Global Delineation of Optically Shallow and Optically Deep Water Using Machine Learning. *IGARSS 2024 - 2024 IEEE International Geoscience and Remote Sensing Symposium*, 6010–6013.
<https://doi.org/10.1109/IGARSS53475.2024.10641668>
- Wu, Y.**, & Knudby, A. (2023). A Tool That Calculates the Sea-Surface Reflectance Factor in Customized Environments and Geometry. *IGARSS 2023 - 2023 IEEE International Geoscience and Remote Sensing Symposium*, 464–467.
<https://doi.org/10.1109/IGARSS52108.2023.10282740>
- Wu, Y.**, Knudby, A., & Lapen, D. (2023). Topography-adjusted Monte Carlo simulation of the adjacency effect in remote sensing of coastal and inland waters. *Journal of Quantitative Spectroscopy and Radiative Transfer*, 108589. <https://doi.org/10.1016/j.jqsrt.2023.108589>

Non-peer reviewed

- Wu, Y.** (2025). Video tutorials: Improving retrieved surface reflectance - adjacency-effect correction using T-Mart. <http://dx.doi.org/10.13140/RG.2.2.36495.91045>
- Wu, Y.** (2022). T-Mart Radiative Transfer Code and Documentation. <https://tmart-rtm.github.io>
- Wu, Y.** (2021). Topography-adjusted Monte Carlo simulation of the adjacency effect in remote sensing of coastal and inland waters [Report in fulfillment of the requirement for fast-tracking into a PhD program]. University of Ottawa.
- Wu, Y.** (2020, September). Social Distancing: Easy in a Kayak Surrounded by Instruments – Collection of Remote Sensing Reflectance in Rivers. *Geography, Environment and Geomatics Newsletter*. <https://arts.uottawa.ca/geography/geg-env-newsletter>
- Wu, Y., Cheney, C., & Blais, J. M.** (2019). The spatial distribution of arsenic and other trace metal contaminants and their acute toxicity to *Daphnia pulex* in lakes near the Giant Mine in Yellowknife NWT [Honours Thesis]. University of Ottawa.

Awards and Scholarships

2025	The Faculty of Arts Student Awards of Excellence in Studies, University of Ottawa [link]
2024	Association of Professors of the University of Ottawa Award (\$1,500)
2022-2023	Ontario Graduate Scholarship for International Students (\$15,000)
2021-2025	PhD Admission Scholarship, University of Ottawa (\$78,500)
2021-2022	Student Experience Fund, University of Ottawa (\$1,000)
2021	BMO Financial Group Graduate Bursaries (\$4,000)
2020-2021	uOttawa International Graduate Bursary, University of Ottawa (\$4,000)
2020-2021	Suzanne Gratton-Sarrazin Scholarship, University of Ottawa (\$2,050)
2019	Roger Guindon Scholarship Fund (\$1,000)
2019	Gilles G. Patry Community Engagement Scholarship (\$1,000)
2017-2019	Faculty of Science Dean's Honour List & Merit Scholarship, University of Ottawa (\$3,000)
2017	Brian Rust Memorial Scholarship (\$1,600)

Research Grant

2023-2024	Separation of optically deep and shallow water. <i>Big Idea Grant, University of Ottawa</i> (\$20,000)
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Service and Outreach

2024-Present	Manuscript reviewer: <i>Journal of Hydrometeorology, Remote Sensing of Environment, IEEE Trans. on Geoscience and Remote Sensing, Wetlands</i>
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- ## Field Experience

Additional Training

Qualifications

Advanced operations certificate – small remotely piloted aircraft systems (RPAS)
Wilderness First Aid with CPR training
Canada pleasure craft operator card
WHIMS, radiation safety certifications

Presentations

- Wu, Y.,** Knudby, A., Pahlevan, N., & Lapen, D. (2024, October 9). *Improving atmospheric correction over inland and coastal waters: Sensor-generic adjacency effect correction*. Ocean Optics XXVI, Las Palmas de Gran Canaria, Spain.
- Wu, Y.,** & Knudby, A. (2024, June 13). *Adjacency Effect Modelling and Correction for Optical Remote Sensing of Inland and Coastal Waters*. 45th Canadian Symposium on Remote Sensing, Halifax, Nova Scotia, Canada.
- Wu, Y.,** Knudby, A., Pahlevan, N., Lapen, D., Zeng, C., & Begeman, C. (2023, November 15). *Adjacency-effect correction in remote sensing of coastal and inland waters for Sentinel-2 MSI and Landsat-8 OLI imagery*. International Ocean Colour Science Meeting 2023, St. Petersburg, Florida, the USA.
- Wu, Y.,** & Knudby, A. (2023, July 17). *A Tool That Calculates the Sea-Surface Reflectance Factor in Customized Environments and Geometry*. The International Geoscience and Remote Sensing Symposium 2023, Pasadena, California, the USA.
- Wu, Y.,** Knudby, A., & Lapen, D. (2023, May 29). *Adjacency Effect Modelling and Correction for Remote Sensing of Inland and Coastal Waters*. The Canadian Meteorological and Oceanographic Society 57th Congress, St. John's, NL, Canada.
- Wu, Y.,** & Knudby, A. (2022, February 28). *Topography-Adjusted Monte Carlo Simulation of the Adjacency Effect in Remote Sensing of Coastal and Inland Waters*. Ocean Sciences Meeting 2022, Online. <https://osm2022.secure-platform.com/a/gallery/rounds/3/details/5093>
- Wu, Y.** (2021, May 7). *Topography-Adjusted Monte Carlo Simulation of the Adjacency Effect in Remote Sensing of Coastal and Inland Waters*. Geography, Environment and Geomatics Graduate Student Conference, University of Ottawa.
- Wu, Y.** (2021, March 17). *Topography-Adjusted Monte Carlo Simulation of the Adjacency Effect in Remote Sensing of Coastal and Inland Waters*. The 3rd National NetCOLOR Meeting, Université Laval.
- Wu, Y.** (2020, September 2). *Retrieval of remote sensing reflectance in the South Nation River, Ottawa*. NetCOLOR Communities-of-Practice Workshop, University of Ottawa.
- Wu, Y.** (2020, February 24). *Satellite derived water quality observations in inland waters*. Canadian Hydrographic Conference, Quebec City, Canada.
- Wu, Y.** (2020, February 11). *Remote sensing-based detection of point source pollution in Canadian waterways*. NetCOLOR Communities-of-Practice Workshop, University of Ottawa.

- Wu, Y.** (2019, November 6). *The use of satellite imagery to monitor inland water quality*. EVS4904 Environmental Science Seminar, University of Ottawa.
- Wu, Y.** (2019, October 9). *Remote sensing of seaweed in the Atlantic Ocean*. EVS4904 Environmental Science Seminar, University of Ottawa.
- Wu, Y.** (2019, April 8). *Lakes close to an abandoned gold mine continue to show hazardous metal(loid) concentrations for *Daphnia pulex* (water fleas) despite a decade of recovery* [Honours Thesis]. Poster Presentation, University of Ottawa.